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ARTIFICIAL BREEDING AND HERD IMPROVEMENT IN NEW ZEALAND*

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Animal breeding, which to most of us is synonymous with animal improvement, provides all of us here with our living in one way or another. This fact in itself is sufficient to remind us how complex this sphere of work is becoming. Each year is adding to the already large army of experts now necessary for following up investigations into the subjects allied to animal breeding.

In this country the problem is complex enough with the specialisations of numerous breeds, and the economics of proper feeding and management. Other countries, and even other districts in the same country, have quite different conditions, which often require marked changes in feeding and management, as well as altogether different breeds of cattle. This does not mean that it is not profitable to keep in touch with the other man's problems and his methods of handling them, and that is what I hope to be able to do to some extent during the next few months. I welcome the opportunity to-day of saying something about our cattle breeding problems in New Zealand, because in some details they differ from yours here and I hope that you may hear something of interest or profit to you, from our attempts at dairy cattle improvement by artificial breeding.

FARMING PRACTICE IN NEW ZEALAND

Overseas visitors to the Ruakura Animal Research Station often seem puzzled at some of our actions in this sort of work, and usually I have to preface any description of the work with a short account of the farming background which explains some of our moves ; I feel that I must spend a little time doing the same thing to-day, otherwise what follows may be unintelligible.

(*a*) The first point to remember is that the human and dairy cow populations in New Zealand are about equal : 1,750,000 dairy cows for the same number of people. Liquid milk suppliers form a very small portion of the total output. This means that 90 per cent. of the dairy industry is an export business. There is thus no need for maintaining a level supply of milk during the winter months. Of course, a small number of farmers do cater for the liquid milk market, but they have not been considered for the scheme of national herd improvement as they comprise such a small minority—except for one thing, and that is that this group of farmers provides the only source of material for training technicians for the main season's work. For supplying milk for towns, a certain number of cows are bred in May, June and July of each year to calve the following autumn, *i.e.*, February and March. Technicians trained at this time can be used in the main field A.I. work the following October and November.

(*b*) The second point which has to be stressed is that dairying in New Zealand is entirely pasture farming. The usual picture is a period of very rapid growth from mid-September until late December. This is followed by a dry period for January, February and March, with a wetter period again in April and May, which usually gives good pasture growth before the cold weather settles in during June, July and August. As already explained, there is no incentive to maintain production all the year round as the industry is predominantly an export one, so that the most efficient utilisation of the natural pasture growth is done by calving as many cows in the herd as possible during July and August in order that the peak of the lactation curve may fit the peak of the pasture growth curve. As many cows as possible are dried off during the late April and during May for a rest until calving in July and August. Thus it is usual to speak of a dairying season as the period elapsing between the calving in July and August until the following May.

(*c*) The seasonal nature of the pasture growth moulds the whole farming year into restricted seasons. To achieve a compact calving season during July and August there must be a similar compact breeding period. This usually starts at the beginning of October, and if things go well, finishes late in November. It will readily be appreciated that this sort of arrangement restricts the time for A.I. work to about two months of the year. Thus, we can only regard artificial insemination as a seasonal job, and a short one at that. This, of course, applies only to the field inseminating officers. A much longer period of work is required for locating suitable bulls, forming new groups, and training technicians, etc. In passing, it is worth mentioning that the work of veterinary surgeons in practice is characterised by fluctuating peaks, depending on whether it is the calving season with its attendant calving cases, milk-fever cases, etc., or the breeding season with the infertility problems, and so on. It is unfortunate that the A.I. season coincides with a very busy season for veterinary surgeons.

(*d*) One of the main advantages that we can claim in New Zealand in adopting a national herd improvement plan through A.I. is that we are dealing with one breed of cattle. Recent figures published in New Zealand show that out of a total of 1,845,510 cows and heifers in milk, 1,580,901 were classed as pure-bred and cross-bred Jerseys. This amounts to nearly 85 per cent. of the total cattle in milk. It is this fact rather than any preference for breeds on our part, that has restricted almost all the A.I. work to Jerseys. As will be seen later, difficulties in organising field work with such large numbers of animals of one breed would have been greatly exaggerated with some of the less numerous breeds. It may be of interest to give you the percentage figures for the other popular breeds of cattle in New Zealand : Friesians 5·8, Shorthorns 5·2 and Ayrshires 3·0. The position shown by the above figures is the outcome of a gradual change from a predominantly Shorthorn national herd at the close of the first world war. The proportions of the Friesians and Ayrshires have remained very even throughout this period, but with a slight tendency downwards.

* Presented to the Society for the Study of Animal Breeding, February 15th, 1952.

Organisation of Research Work

Before going any further, it would be as well to explain the position of the bodies responsible for the artificial breeding work in New Zealand. From 1936 until 1951 research work in artificial breeding has been going on in the Department of Agriculture in New Zealand. The earlier work lapsed somewhat but was revived in 1940 and has been actively carried on since then. The restricted, seasonal nature of the work has meant that experiments have been drawn out longer than was necessary, waiting for the short breeding season. Since the establishment of the Department of Agriculture's Animal Research Station at Ruakura the work has been centred there. The research work and the organisation and working of the field experiments have been done by staff from Ruakura. As the experimental period finished the field work was gradually taken over by the organisation of the New Zealand Dairy Board through its provincial Herd Improvement Offices. It appears that the stage has been reached where commercial A.I. will be handled by the New Zealand Dairy Board and research will still be done by the Department of Agriculture at Ruakura. It should not be taken that the interest and support of the A.I. project in New Zealand has only lately been given by the New Zealand Dairy Board. Right from its inception, the Dairy Board and the Department have worked in the closest collaboration. Without the assistance of the New Zealand Dairy Board's data on bull progeny performances it would have been impossible to attempt any such national herd improvement scheme.

Objectives of Herd Improvement by A.I. in New Zealand

Before defining the objectives, it is necessary to outline our position at the start of this work. Average per cow production in New Zealand from the end of the 1914-18 war until 1939, showed a steady upward trend from 180 to 240 lb. of fat annually. After that date there was no real increase, and the main reason for this was considered to be the very small margin between the genetic productive potential of the pedigree and grade cows. It appeared that the average from the grade cattle was practically as high as for the pedigree nucleus which supplied the breeding bulls to the grade herds. Only by much more stringent selection of future sires could any progress be made. By extending the work of specially selected bulls by A.I. a more rigorous selection would be possible. This general outlook resulted in the development of the Sire Survey Scheme of the New Zealand Dairy Board. Support for the above statements is found in the analysis of the dairy bull surveys for 1944. Ward showed that out of the bulls included in the bull surveys, only 26 per cent. were raising production in the herds in which they were being used, 28 per cent. were maintaining, and 46 per cent. were lowering it. It seemed that A.I. had come at a very opportune time, enabling the few really outstanding bulls to be used to the utmost advantage. The problem of increasing the potential average cow production was considered a national one, and as the research was being done with public money it was to be expected that the approach would be one of general benefit to the greatest numbers rather than to regard A.I. as a perquisite for a few fortunate ones. Any system evolved, therefore, had the ultimate benefit of the national herd in view. There was no restriction at all on the establishment of private A.I. groups should these prove attractive enough to dairymen, but the uncertainty of the technique in the early stages, and the fact that the work is so seasonal, restricted its appeal in this way even to town supply dairymen, as this group could not provide regular work throughout the year.

Having decided to plan the future work in A.I. on a national basis, it was laid down in the earliest stages that the standard of the bulls must be very high. Thus, not only was the work to be restricted to proven bulls, but they were to be of a very high standard. The figure decided was a daughter production of 400 lb. of fat from all daughters in milk. This represents approximately the top 5 per cent. of the bulls tested. It was shown very early that in spite of the existence on paper of quite a number of this class of animal, when negotiations for the purchase of them was started, many were either already dead, not for sale, or unprocurable for different reasons. In order to make up the team of bulls at Ruakura it was necessary during the early years occasionally to reduce the production standard to 380 lb. of fat. However, it was felt that as time went on these bulls would come to light in greater numbers, as farmers saw the advantages of obtaining sire surveys.

By 1943 sufficient experience had been obtained with the technical work to let us think that field work on a limited scale could be started. A small group of farmers close to Ruakura were organised into the first experimental group. Most of these men are still in it. The first year's work proved moderately satisfactory, and was expanded considerably the following year to service about 3,000 cows in three different areas, one 250 miles distant. This work failed, largely on technical grounds, as at this time we were still using the cervical method of insemination. This failure was not without its uses, as it brought to attention three important points which altered the whole trend of the work. Up to this time it was hoped to simplify the technique to allow farmers to do their own cows. The failure of the cervical technique with small doses of semen meant that the intra-uterine technique would be necessary; thus the work would have to be restricted to technicians. In the second place, it was becoming apparent that bulls would be very scarce for some years, and thirdly, the added field experience showed the real magnitude of the task in attempting to make any worthwhile coverage on the grade cows of the Dominion in the short breeding season. Illustrating this last point, it was found that in a group of 3,000 cows, more than 2,800 had been inseminated in the first three weeks of the season's operations. Thus in attempting any nation-wide scheme with grade cows, a substantial percentage of the 1,750,000 cows would have to be handled in the first three weeks.

Herd Improvement Through Pedigree Herds

At this stage of the work it became apparent that by concentrating our efforts on the pedigree herds of the Dominion, a much greater contribution to the improvement of the national herd would be possible, than by attempting it directly through the grade cows. In this way the problem would be tackled at its source, as over 70 per cent. of the grade herds draw their bulls from the pedigree nucleus. Dealing with a national pedigree herd of about 48,000 cows would be a different matter from trying to make some impression on 1,500,000. The acute shortage of bulls made this imperative. Again, working with pedigree cows, every successful insemination would add to the total improved stock of the country, instead of only half as with the grades. As mentioned previously, only the heifer calves are kept from grade herds, the bull calves being sold as "bobbies" at a few days old. Also, the smaller pedigree herds would make it easier to service as it was now clear that the intra-uterine method of insemination would have to be used, it being out of the question to train farmers to do their own cows by this method. Another point in favour of this approach was that the normal system of trade would

not be interfered with, as in any case, pedigree breeders were supplying over 70 per cent. of the breeding bulls to the commercial farmer. The suspicion that artificial insemination was heralding the end of the breeder's livelihood would be abolished—not a small consideration in some quarters. Last, and most important, this attempt would give a much greater cover for the few bulls which were available from the lists of proven sires issued by the New Zealand Dairy Board.

Practical experience has shown that in New Zealand 800 cows can be successfully bred to one proven bull in the short mating season of seven or eight weeks. This figure can be increased considerably as the cow population in the A.I. group expands, but at present, this figure represents the maximum so far achieved. The mean is nearer 400. It is usual to find that only 66 calves are marked out of every 100 cows presumed in calf at the end of the breeding season. The balance are lost through cullings of the cows after they are in calf, deaths at calving, deaths of calves, etc. Thus, taking the most optimistic view at present, if the work was among grade cows a third of 800, or 266, heifers would be the total that could be expected from each bull each year for about three years, which in our experience is the expectancy of useful life in A.I. units. This means that about 800 heifers from each proven sire would be the maximum figure. Male progeny would be entirely lost as " bobby calves."

In the case of pedigree cows, the same figures would apply for the heifers available, but in addition, there would be a similar number of bull calves, which later would be placed out in the commercial grade herds, replacing sons of unproved bulls. Taking an optimistic view, during the three years that the average proven sire stays in the A.I. team he should be able to sire 800 daughters and 800 sons. The 800 sons should during their lifetime leave 20 daughters each in the herds in which they are used. Thus, through the pedigree approach, about 20 times as many female progeny are possible from the proven sires and their sons. Admittedly, the bulk of this number comes from the sons of proven sires.

Standard for Pedigree Cows.—In the pedigree scheme outlined above, the main responsibility for lifting production falls on the sons of the proven bulls originally selected. The margin of improvement depends as much on the dam as the sire, and if pedigree breeders were to offer inferior cows, the advantages of the proven sire would tend to be cancelled out by the dam. Some of us felt that, at any rate in the early stages of this work, as it was somewhat in the nature of a practical demonstration, only very carefully selected dams should be used, even at the cost of some reductions in numbers done. Illustrating this danger, it has been pointed out that in the first batch of young bulls sold to the industry from pedigree cows in the above system, 30 per cent. failed to qualify for the Rehabilitated Servicemen's Bull Scheme, which did not demand a very high production figure for the dams, *i.e.*, 330 lb. fat. It was eventually decided that no production test should be applied to the cows offered for the A.I. service, because even the poorer producing pedigree cows would be producing better calves, both bulls and heifers, than would be the case with the type of bulls being used by natural mating. The heifer calves born and milked in the pedigree herds would provide material for the breeder to compare with his own naturally bred stock.

Experimental Period of Pedigree Work.—For the four years following the adoption of the above policy for A.I. in New Zealand, pedigree breeders in the area covered by a 30-mile radius from Ruakura were offered, free of charge, an artificial breeding service from the proven sires selected through the Dairy Board's Sire Survey Scheme. No strict conditions were imposed, but it was suggested that the resulting bull calves should be made available to members of Herd Improvement Associations, and that the bulls should be sold at a reasonable price seeing that the A.I. service was free in the first place. Theoretically, no selection of a particular bull from the small team available was allowed, though in practice each breeder's wishes were met as far as possible. Apart from the general attempt to improve the dairy stock through the pedigree herds, this scheme was interesting in giving some indication of the measure of support that would be forthcoming for a voluntary scheme of this sort, weighted, of course, with the bait of a free service.

Response.—Even if it were possible to calculate the response from pedigree breeders in a strictly mathematical way from the population of pedigree cows in the area covered by the service and the number offered for A.I., it would not tell the whole story. It is astonishing how slowly, sometimes, the advantages of this pilot experiment were realised by practical breeders, in spite of preparatory propaganda work extending over some years. In round figures the sort of response received was 600 cows from 45 breeders, and this in a dairying area where there would be over 200,000 dairy cows 10 per cent. of which are estimated as pedigree.

Most of the response came from the established butter-fat testing men working in the Dairy Board's Herd Improvement Scheme, though some of the fashionable breeders offered a few cows. Some prominent breeders were actively hostile to the whole idea, and no doubt influenced others who were undecided whether to try it out or not. Quite a number of pedigree cows are milked in large herds in which the greatest number of animals are grades. Generally speaking, these men are not so committed to definite breeding programmes as are the strictly pedigree man, and it was surprising that there was not a greater response from this type of farmer. In spite of a relatively small percentage response in the area covered, it was felt better to work up gradually in a small way, and to demonstrate the theory in practice, than to attempt a big scheme which might have to be modified later. In spite of the fact that the A.I. scheme has been operating now for some five years with very satisfactory results, both from the point of conception rates and the keen demand for young bulls, the response in the area has not tended to exceed the figures quoted above. In fact, during the past season when a charge was made at the rate of £3 per cow in calf, there seemed to be a slight falling off in support. It is of interest to note that out of 124 circulars sent to farmers having six or more pedigree cows in their herds in the area covered by the A.I. scheme, interest was shown by only eight men. These figures should not be taken too seriously, but I do think they illustrate the magnitude of the problem confronting us.

In support of the pedigree breeders, it must be admitted that a service which does not offer selection of a particular bull when required is not likely to be popular, as breeders naturally wish to follow their own breeding lines as far as possible even when using A.I. Again, the fact that we have such a small team of bulls gives very little selection on strains or families of bulls, and there is a tendency to acquire bulls from one or two leading studs with excellent production results, but no show-ring records.

Results

As I am dealing primarily with the production side of the A.I. work this afternoon, I do not wish to spend too much time discussing the conception rates or other matters of technical interest. I would like to mention, however, that a satisfactory conception rate has always been obtained with

the pedigree field experiment. This has been of the order of 50 to 60 per cent. on the first insemination. Great variation, of course, exists between herds and bulls, and to a smaller extent between technicians. Of recent years, a similar conception rate has been obtained with the grade herds. A figure of over 50 per cent. holding to the first insemination is quite satisfactory for most farmers as it works out to give about 75 per cent. of the herd in calf in the seven-week insemination period. In the Waikato, where most of this work has been done, the median calving date is August 9th, that is, 50 per cent. of all cows have calved by that date each year. By the end of August, usually 73 per cent. have calved, which is very similar to the figure for A.I. Better conception rates may on occasions be an embarrassment the following winter if the feed position on the farm is bad, or if the winter is a particularly severe one.

I do not wish to suggest that we are satisfied with our results ; we are hoping to improve our techniques, particularly in the storage of semen.

Production Results

The pedigree nucleus experiment has not been going long enough to allow me to quote any production figures from the progeny of the sons of proven sires, but some indication of the figures to be expected can be obtained from the data collected by the New Zealand Dairy Board, and published in their 25th Annual Report.

Effectiveness of Selection Based on Various Methods

Basis of selection	Number of daughters	Lb. fat above or below average
Selection based on survey results of sires and lifetime records of dams—		
Sons of Merit sires :		
(*a*) Out of " Elite " L.M.R. cows (18)	324	+ 18
(*b*) Out of L.M.R. cows (63)	1,191	+ 11
Selection based on lifetime or single records for dams, and irrespective of quality of sire—		
1. Lifetime records :		
(*a*) Sons of " Elite " L.M.R. cows (34)	598	+ 12
(*b*) Sons of L.M.R. cows (158) ...	2,923	+ 7
2. Single records :		
(*a*) Sons of cows with single records over 600 lb. fat (207) ...	3,746	+ 4
(*b*) Sons of cows with single records 400 to 600 lb. fat (400) ...	7,744	+ 2
(*c*) Sons of cows with single records below 400 lb. fat (136) ...	1,904	− 4
Selection based on survey results of sires, and irrespective of quality of dams—		
(*a*) Sons of Merit sires (205) ...	3,485	+ 7
(*b*) Sons of sires with survey results 20 lb. below average (60) ...	903	− 8

The above table illustrates the advantages of selecting bulls from cows with lifetime records compared with only single records.

Production records from the grade daughters of the proven bull team at Ruakura have been available for some years, though as far as the results from pedigree cows are concerned, these have only started coming to hand. What results are available are included in Table I, taken from a recent report from the New Zealand Dairy Board. In this table production records from daughters of four bulls (used in 1947) are separated into grades and pedigrees. When the figures are adjusted for the production levels of the mature cows in these herds, there is no significant difference in the productions of the grade compared with those of the pedigree daughters. It is gratifying to see that there is an improvement over mature cows in their respective herds of 36 lb. of fat for pedigrees and 34 for grades, a substantial margin considering the level of production of the mature cows. If this order of improvement continues it will go a long way to establishing confidence in the minds of pedigree breeders that the bulls selected for this work are, in practice, taking a lot of the gamble out of selection for production.

As the work has progressed, the selection of bulls has been improved, as a higher level of production in the surveys has been maintained. This is shown in Table II, in which the productions for the A.I. progeny born 1944 to 1948 are summarised. The bulls used prior to 1947 are compared with those used after that date. The team used since 1947 has improved the daughters over the mature cows in the same herds by 27 lb. of fat, and the team used before 1947 by 11 lb. of fat. The table also contains the average of 189 daughters of 12 other sires which were either not up to Merit standard, or had less than 10 A.I. daughters. This group of bulls improved the daughters by 7 lb. over the mature cows compared with 24 as the average of the other 10 bulls examined in the table. An indication of the effect of feeding and management can be obtained from a comparison of the results from the cows milked in the Ruakura herds, which show a 30 to 50 lb. advantage compared with the commercial herds.

Table III sets out the position in those herds which contain 50 per cent. of A.I. daughters at the end of the 1950-51 dairying season. It will be seen that there is a steady improvement shown in most herds, but for unapparent reasons, three of the herds (D, F and G) have not made significant progress. Culling rates are also shown for the same herds, and it will be seen that this was rather high in some. It will be realised that, in general, farmers do not cull A.I. heifers lightly, so the rate of culling is rather surprising. The average for all herds is 22·8 per cent. This is the total number of culls and not the yearly figure.

Table IV, issued in the same report of the New Zealand Dairy Board, contains a very interesting analysis of the performance of the bulls in herds of different production levels, thus assessing the value of A.I. in improving production in high and low producing herds. Those herds containing five or more A.I. daughters have been listed in descending order of production according to the mature cow average, and the list divided into four. The first quarter shows an improvement of the daughters over the mature cows in the same herd of 3 lb. of fat, the mature cow average being 364 lb. of fat, and 17 lb. above the expected average for the heifers. That is, the A.I. stock produced at 17 lb. better than the heifers of the average bull mated to the same class of cows would be expected to produce. In the second quarter, the A.I. daughters were 22 lb. of fat better than the mature cows in the same herds, which averaged 337, and 30 lb. better than expectancy. In the third quarter the mature cows averaged 306, the heifers 333 or 27 lb. better and 27 lb. above expectancy. The mature cows in the lowest quarter averaged 270 lb., the A.I. heifers 302, a gain of 32 lb. This group was 22 lb. above expectancy. It is felt that the improvements shown in all levels of production promise well for the production gains of artificially bred stock from the high quality Merit sires, and that on this basis we are working along sound lines.

Although the results quoted give confidence in the ability of the bulls selected for this work to raise production to a worthwhile degree, unless they can be used to a much greater

(*Continued on page 562*)

TABLE I
COMPARISON OF PRODUCTION RECORDS OF PEDIGREE AND GRADE A.I. DAUGHTERS
(Based on Results in Commercial Herds for Four Merit Sires)

Sire		Number of daughters	Daughter average		Mature cow average	Increase in daughters over mature cows	Expected daughter average	Lb. fat above or below expectancy
			Test	Fat				
A	Pedigree	86	5·50	369	332	+37	326	+43
	Grade	183	5·35	350	310	+40	309	+41
B	Pedigree	40	5·16	381	352	+29	340	+41
	Grade	147	4·94	340	313	+27	311	+29
D	Pedigree	18	5·67	323	325	− 2	320	+ 3
	Grade	13	5·31	330	318	+12	315	+15
E	Pedigree	32	5·38	348	324	+24	320	+28
	Grade	23	5·26	334	324	+10	320	+14
Average for the four Merit sires	Pedigree	176	5·42	363	334	+29	327	+36
	Grade	366	5·18	344	312	+32	310	+34

TABLE II
A.I. BRED COWS BORN 1944 TO 1948
(Production Records for the Five Seasons 1946–47 to 1950–51)

Sire	Commercial herds					Ruakura A.R.S.		Total all daughters under group test		
	Number of daughters	Number of lactations	Daughters' average (lb. fat maturity equivalent)	Average of mature cows in same herds	Increase in daughters over mature cows	Number of daughters	Daughters' average (lb. fat maturity equivalent)	Number of daughters	Average test	Daughters' average (lb. fat maturity equivalent)
Merit sires used in 1947										
A	269	380	356	317	+39	7	401	276	5·40	357
B	187	327	349	321	+28	13	370	200	5·00	350
C	112	196	306	300	+ 6	17	365	129	5·21	314
D	31	55	326	322	+ 4	19	362	50	5·52	340
E	55	55	342	324	+18	—	—	55	5·33	342
	654	1,013	343	316	+27	56	370	710	5·26	345
Merit sires used prior to 1947										
F	44	135	335	320	+15	4	456	48	5·16	345
G	30	84	337	324	+13	1	322	31	5·19	337
H	16	51	320	317	+ 3	—	—	16	5·01	320
I	11	24	325	324	+ 1	3	412	14	5·29	344
J	7	16	314	296	+18	6	328	13	5·30	320
	108	310	331	320	+11	14	382	122	5·18	337
Average of 10 Merit sires	762	1,323	341	317	+24	70	372	832	5·25	344
„ 12 other „	189	375	311	304	+ 7	4	*348	193	5·31	312
Average of all sires ...	951	1,698	335	314	+21	74	371	1,025	5·26	338

TABLE III
PRODUCTION TRENDS IN HERDS WITH 50 PER CENT. OF A.I. STOCK

Herd	Dairying season														Culls	
	1944–45		1945–46		1946–47		1947–48		1948–49		1949–50		1950–51			
	C.	Prod.	C.	Prod.	C.	Prod.	C.	Prod.	C.	Prod.	C.	Prod.	C.	Prod.	Total	A.I.
A			124	238	118	327	128	279	121	331	122	305	120	332	109	34
B	82	280	73	182	80	262	79	283	81	311	83	347	82	333	68	21
C					49	241					59	272	59	289	42	5
D									26	283	25	280	34	279	18	1
E									70	268	62	313	74	300	45	7
F							87	250	85	283	85	306	93	278	45	2
G					54	251	53	215	52	247	54	265	54	238	36	6
H							99	223	94	258	90	281	100	266	76	24
															439	100
															22·8 per cent.	

TABLE IV
PERFORMANCE OF A.I. DAUGHTERS ACCORDING TO HERD PRODUCTION LEVEL
(Includes Daughters of Merit Sires only)

Herd	Number of daughters	Daughters' average		Mature cow average	Increase in daughters over mature cows	Expected daughter average	Lb. fat above or below expected average
		Test	Fat				
1	6	5·47	426	437	−11	404	+22
2	5	4·77	360	387	−27	367	− 7
3	6	5·05	331	383	−52	363	−32
4	5	5·38	401	382	+19	363	+38
5	5	5·74	391	358	+33	345	+46
6	7	5·18	343	357	−14	344	− 1
7	11	5·68	378	353	+25	341	+37
8	17	5·48	356	352	+ 4	340	+16
9	6	5·62	355	350	+ 5	339	+16
10	10	5·71	344	349	− 5	338	+ 6
11	5	5·82	389	342	+47	333	+56
Average of top group—11 herds ...	83	5·47	367	364	+ 3	350	+17
12	51	5·13	360	340	+20	331	+29
13	72	5·20	352	339	+13	331	+21
14	22	5·11	365	339	+26	331	+34
15	14	5·25	355	336	+19	328	+27
16	8	5·17	373	334	+39	327	+46
17	7	5·08	363	334	+29	327	+36
18	12	5·51	365	333	+32	326	+39
19	5	5·02	365	332	+33	326	+39
20	9	5·08	365	330	+35	324	+41
21	6	5·63	361	326	+35	321	+40
Average of second group—10 herds	206	5·19	359	337	+22	329	+30
22	7	5·08	348	321	+27	317	+31
23	5	5·45	304	318	−14	315	−11
24	21	4·84	350	318	+32	315	+35
25	9	5·62	341	314	+27	312	+29
26	5	4·88	320	312	+ 8	310	+10
27	8	5·13	338	312	+26	310	+28
28	33	5·16	350	305	+45	305	+45
29	36	5·12	351	304	+47	305	+46
30	49	4·86	302	300	+ 2	302	0
31	21	5·17	330	299	+31	301	+29
Average of third group—10 herds...	194	5·06	333	306	+27	306	+27
32	14	4·92	311	298	+13	300	+11
33	6	4·80	324	297	+27	299	+25
34	7	5·23	316	297	+19	299	+17
35	12	5·62	309	286	+23	292	+17
36	12	5·39	312	278	+34	286	+26
37	32	5·40	300	272	+28	282	+18
38	13	5·19	304	268	+36	278	+26
39	5	4·83	296	256	+40	269	+27
40	33	5·20	307	252	+55	266	+41
41	14	4·97	274	249	+25	264	+10
42	5	4·57	254	233	+21	252	+ 2
Average of lowest group—11 herds	153	5·20	302	270	+32	280	+22

extent in pedigree herds, the nucleus breeding scheme which I have outlined cannot make any effect on the country as a whole. If the present levels of improvement are maintained, it is certain more and more breeders will make use of this class of bull, but this may take a long time. If the commercial farmers sense that the pedigree breeder is not attempting to provide the sort of bull which is likely to raise production, then it is possible that the commercial herds will look to providing their own herd sires. Many commercial herds already contain a small nucleus of pedigree cows which could be used for the purpose, and many farmers are prepared to buy good cows as potential dams for stud bulls by A.I. from the team at Ruakura. This type of man is very much less likely to be concerned with the finer show points in his bulls, and consequently many bulls which are now turned down on type could be used very profitably. Up to the present, in order to enlist the support of the pedigree breeders for the scheme, all bulls selected as Merit sires have had to pass an examination on type, by a representative of the New Zealand Jersey Breed Society, which has resulted in the loss of many well-proved Merit sires. The first problem at present is to obtain greater support from the pedigree breeders ; just how they will join in will be decided in the next year or two.

The next serious problem is the perennial acute shortage of bulls. Each year the difficulties seem to be increasing instead of decreasing. During the past year, 88 bulls were located by officers of the New Zealand Dairy Board as

measuring up to the production standards. The result was one bull actually added to the team at Ruakura. There is also the difficulty of advancing age in the bulls located as Merit sires, six being the youngest age they can be located ; more frequently they are eight or nine. It is of course understandable that a farmer who finds he has a really outstanding bull feels very reluctant to part with him, particularly if he is in a district where the chance of getting A.I. service back for a few animals is out of the question.

To overcome this difficulty, and ensure that a pool of Merit bulls is available in future, a start was made last year with a group of yearlings, using them on grade cows until they are proved. By very careful selection, it is hoped that up to 50 per cent. of this group will eventually measure up to the required production standards. The general scheme has thus been modified to provide service from Merit sires only to pedigree cows, and all grade cows are serviced by young unproved bulls. In this way the commercial farmers are getting A.I. services from a group of sons of Merit sires which are considerably better bets than the sort of bull they can buy themselves, and they are at the same time helping in the more rapid selection of the Merit sires of the future which will be used on the pedigree cows. The charges at present are £3 per cow in calf for pedigrees, and 30s. for grades.

This dual approach is the only method whereby the bull team can be increased, but the numbers will be very small for some years to come. Unless A.I. technique can be given some powerful added advantage either in smaller dose rates, or in longer effective storage, I feel that our scope will be very restricted for a considerable time. In these circumstances it is questionable whether A.I. should be encouraged or permitted in those herds where it is obvious that feeding and management, rather than breeding, are the limiting factors to increased production.

I have limited my remarks to the investigation of production improvement by A.I. ; some of you may consider that A.I. has an important function in increasing dairy efficiency, and hence production improvement, through the opportunity for reducing sterility, and restricting or clearing up genital disease. This aspect, though admittedly important, has not been actively pursued as part of the A.I. framework, but as our technical difficulties are overcome I have every confidence that staff and facilities will be available to tackle it.

In conclusion, I would like to emphasise that we have tried to use A.I. in New Zealand as a tool for national herd improvement and not as an in-calf service. I hope that some of the practical problems we have met have been of interest to this Society. What we plan so optimistically on paper, so often comes to nought in the face of practical farming and breeding difficulties. The practical dairy cattle breeder has so much progress to his credit, that it is natural that he is waiting to be convinced that some arm-chair breeder can select his bulls for him. If we make mistakes in selection, their effects will be very widely advertised and very difficult to conceal, and for this reason slow and steady progress has its advantages. I think we need to establish our theories with the practical breeders before the next technical advances carry us into a wider field.

Discussion

Mr. G. H. Bennett, Lyndhurst, thanked Mr. James for what all would agree was a most interesting paper. Before hearing Mr. James, he knew nothing of agriculture and dairying in New Zealand and the paper had made him realise what entirely different problems artificial insemination presented in that country when compared with this country. He envied Mr. James in one matter only and that was having to deal with a single breed. In Britain we had to satisfy the demands of a large number of breeds and this presented difficulties, not only in the internal management and routine of artificial insemination centres, but in the selection of suitable bulls for the purpose. These difficulties could, however, be overcome. In New Zealand the extreme shortness of the breeding season, the shortage of bulls and the apparent unwillingness of many pedigree breeders to participate in the scheme, presented enormous problems.

The shortness of the breeding season in itself would appear to make a nation-wide scheme impossible. It was most improbable that all the dairy herds in the country would use A.I. even if they had the opportunity, but if one assumed that 25 per cent. were willing to co-operate, it would still appear that 450,000 animals would have to be inseminated in three weeks. He knew nothing of the labour position, road conditions or herd sizes in New Zealand but, given ideal conditions in every way, such an undertaking would necessitate the employment of over 1,000 inseminators. The difficulties of training such a staff would be enormous, but might it not be possible to use local farming labour which, after its initial training, could be called upon year after year, thereby cutting down the number of trainees to a minimum ? Obviously an experienced inseminator could carry out a greater number of inseminations in a day than could a novice, and the efficiency of his technique would result in a larger percentage of successful inseminations, so reducing the number of repeat services required and, consequently, the total number of inseminations carried out in the breeding season. Mr. James quoted a conception rate of between 50 and 60 per cent. ; what exactly did Mr. James mean by that ? Was the conception rate estimated, as in this country, on a three months non-return to service basis, or on established pregnancies, or on calves born ? If the first, namely, the three months non-return to service, he should imagine that there was considerable room for improvement.

The problem of obtaining a sufficient number of bulls of the required standard was indeed a major one. Obviously there were only a limited number of Merit bulls, and breeders were unlikely to wish to dispose of them while they were still of value to their herds. Was it not possible to hire such bulls during the breeding season, paying the owners a percentage of the insemination fees ? The owner would wish to use the animal on his own cows during the same season, but could it not be arranged for the bull to be stationed in the owner's area ? As the breeding season was only of eight weeks' duration, semen collections could be made two or three times a week during the period without harming the animal. It should be possible to use semen for three days with perfectly satisfactory results and, consequently, the A.I. centre would be in a position to give nominated service at any time.

The idea of rearing bull calves out of outstanding dams by Merit bulls and proving them by A.I. on grade cows was, he believed, the best way of obtaining a reasonable number of satisfactory bulls. He believed the only way of ensuring that a bull would produce the type of stock required was to prove him on the cows on which it was intended to use him. It had been the experience of many people that a bull producing high yielding daughters in a well-managed pedigree herd would only produce daughters of average yields in commercial herds, and that these daughters showed no improvement on contemporary daughters bred by natural service from the farm stock bull. What was required was a bull which would produce daughters out of commercial cows, which, on average management, would be superior to the contemporary daughters. A.I. would appear to be the quickest and most satisfactory means of selecting bulls of this type and, although only a proportion of those so tested would conform to the requirement, the number that did not do so would have done no more damage than if the commercial cows had been put to unproven bulls.

Mr. James had said that a large number of Merit bulls were turned down on the type of their progeny, and apparently he deplored this. If by type Mr. James meant a fashionable show type he was, of course, quite right, but if he meant conformation and constitution, surely he was suggesting a dangerous policy. He was not suggesting that one should breed only animals of show-winning type, for such animals were not necessarily good yielders, but he did suggest that it was desirable for the stock to be free of major faults, and to possess a strong and healthy constitution.

Mr. Simmons, Torrington, described his first impression of Mr. James's excellent paper as one of envy since, like Mr. Bennett, he could see what a great advantage the New Zealanders possessed in having a one-breed improvement policy in their A.I. work. He hoped that he might be allowed a few comparisons between New Zealand and the British Isles and especially his own South-West group of centres. He thought that whereas New Zealand enjoyed a certain uniformity of soil and climate and hence of agricultural method, even in the South-West of England there was an enormous variety of conditions and no less than nine breeds were serviced in an attempt to comply with them. As for uniformity of policy, in as short a time as five years he had seen a complete reversal in many herds from a demand for dairy sires on beef cattle to beef sires on dairy cattle, in an attempt to adapt to a change of price structure

and more stringent dairy legislation. Perhaps in the far West, in summer dairying with Guernsey herds, there was the closest approximation to New Zealand practice.

Regarding bull selection, it seemed that the same difficulties appeared in both countries in that reliance was having to be placed on young bulls by proven sires and out of high-yielding proven dams, to enable the demands of the service to be met, and that steps were taken to prove the young bulls as quickly as possible.

Out of a stud of 70 bulls in the South-West, only 15 were proven and this figure included beef sires which were quicker and more easily proven than dairy bulls. He took comfort in the production figures quoted by Mr. James for sons of Merit sires out of high-yielding cows in that they had raised average butter-fat yields by nearly 20 lb. Incidentally, all figures quoted showed very good butter-fats, well in excess of 5 per cent. for the New Zealand Jersey. He hoped this 20 lb. might mean that the 100 gallons increase promised to members at the outset in this country would be realised, provided that the obligations of management were met.

He was glad to note that the view was held that the A.I. service was capable of increasing dairy efficiency by tackling problems of infertility and genital disease. He believed that the investigation of infertility was a legitimate interest if not an obligation of the A.I. centre and that a practical type of A.I. veterinary officer was of real value in that field.

When he was in New Zealand between the years 1937–39, wide investigations were being conducted into the problem of temporary infertility in dairy cattle, and he wondered how this difficulty affected A.I. when conducted over such a short breeding season—especially as he felt he was not the only person who considered that the best treatment for certain types of infertility was time. On the other hand, the two months or so interval between calving and breeding should, on Dr. Edwards' analysis of British N.M.R. figures, be in their favour.

He wondered if he might be allowed to turn to technicalities. He had read in the 1950 report of the Animal Research Department that difficulty had been experienced with storage and particularly in low dilution. His experience was the opposite in that high dilutions were difficult to store and/or transport, and arrangements had to be made to service distant sub-centres with semen at lowered dilutions. Another point was the intra-cervical rather than the uterine inseminating technique advocated last summer by Dr. Salisbury. Had they had the opportunity to experiment with this? A small investigation which he had made showed no drop in conception rate. It was his experience that the intra-cervical technique avoided abortion.

Mr. G. F. Smith, Beccles, after complimenting the speaker, asked the following questions :—

(i) Could Mr. James explain the method of comparison between A.I. daughters and mature cow averages? What was a mature cow average?

(ii) What did technicians do in the off season?

(iii) Did the New Zealand dairy farmer rely on ley farming or natural grass with good pasture management?

Mr. W. K. Hunter, Northampton, enquired what Mr. James considered to be a critical figure when assessing comparison of yields of heifers? Heifers had a corrected mature yield figure given which did not vary, but many other factors must vary. There must be great variations in the value of pastures purely on geographical and geological grounds even when standards of management were similar. How did this affect the picture?

Mr. J. P. Frappell, Gloucester, asked if, speaking generally, the increased weights of butter-fat were obtained by increased percentages of fat in the same yield of milk or by increasing the yield and maintaining the fat percentage?

What was meant by "expectancy" when applied to weight of fat produced? Was this a mathematical calculation based on the production records of sire and dam of a particular animal?

Mr. W. Bruce, Ecclefechan, referred to Mr. James's remarks on the restricted use which could be made of individual bulls; he assumed from this that collections were made at six or seven days' intervals. With such a short breeding season more frequent collections should be possible. Mr. James had spoken of a fall in conception rate of 10 per cent. with semen over 24 hours old. Was this not reduced when antibiotics were used? In this country those who had used antibiotics had found such a reduction. In his case, using sulphanilamide, the fall in conception rate was reduced from 8·4 to 5 per cent.

Mr. A. R. Campbell, Inchinnan, asked if the commercial herds in New Zealand were maintained entirely on pasture, and if the pasture, as in this country, was a limiting factor on the milk yield, was it not pointless to improve the quality of those cows if they were already producing the maximum yield for the food they consumed, or was the pasture of much higher quality than in Britain?

Mr. J. A. Moss, Bromsgrove, enquired as to the extent to which milk recording is practised in New Zealand.

The Reply

Before replying to the discussion Mr. J. P. James expressed his appreciation of the interest shown by members.

In answer to Mr. Bennett, he explained that a conception rate of 50 to 60 per cent. meant that between 50 and 60 cows out of every 100 inseminated were in calf to the first insemination, three months later. The figure was based on non-returns to service, as it was not possible to check the results by rectal examination. With regard to the hiring of Merit bulls, consideration had been given to the leasing of such bulls during the A.I. season, but there were difficulties in arranging satisfactory payment and the limited experience they had had of such an arrangement had been rather unsatisfactory. As the season was so short, it was probably better for an owner to sell the bull, with the right to take back an agreed number of inseminations through the A.I. organisation. It had often been necessary to make some such arrangement before an owner could be persuaded to sell a bull to the A.I. centre.

Mr. James expressed the opinion that during the short breeding season in New Zealand more frequent use could be made of the bulls than would be the case if they were in regular work, but as was generally known, there was a limit to such frequency, determined rather by the bull's inclination to serve than by its capacity to produce spermatozoa. They found that with the average age of bulls they had in use few would serve keenly if used more frequently than every third or fourth day.

With regard to Mr. Simmons' query concerning dilution rates, Mr. James said that he had intended to state that they had attributed poor storage in some samples to low sperm doses (high dilution) but that subsequently this view had proved incorrect. When they had compared cervical with intra-uterine inseminations with split samples there had been an advantage of 17 per cent. in favour of the intra-uterine technique. If the sperm dose were kept to approximately 150,000,000 or higher the difference was eliminated. He considered that some confusion arose as to the meaning of "cervical inseminations." If the inseminations were made deep into the cervix by holding the cervix through the rectal wall, the difference in results would not, he thought, be as marked as in the experiment quoted. If a speculum were used, the cervical insemination was placed only a very short way through the cervix; the results from the two methods were very different.

Replying to two points raised by Mr. Smith, Mr. James explained that the "mature cow" average of a herd was the average production of all cows from four to nine years old inclusive. Maturity equivalent figures for immature animals, *i.e.*, heifers aged two or three years, of the Jersey breed, were obtained by adding 70 lb. of fat to the productions of the two-year-olds and 35 lb. to those of the three-year-olds. With regard to the employment of technicians during the off season, it was expected that farmers forming an A.I. group would arrange for two of their members to undertake training as inseminators, the second man being a reserve in case of sickness or accident. As these men would be drawn from the farming community they would be readily absorbed back into farming at the end of the A.I. season. Sometimes a man with a small herd of his own would undertake insemination as a part-time job. At other times the local herd improvement association would have some of its staff trained for A.I. work. Such men were very suitable as they were used to working with farmers and were also readily absorbed into the herd testing work at the end of the A.I. season.

Answering Mr. Hunter's enquiry concerning a critical figure for comparing yields of heifers having regard to the fact that the corrected mature yield figure was constant while many factors affecting the animal's environment varied, Mr. James said he would consider comparing the yields of the heifers with those of the mature cows in the same herd; thus eliminating complications of feeding and management. By referring to the "expectancy" table of productions compiled each year by the New Zealand Dairy Board it would be possible to ascertain whether a group of heifers was producing above or below the average for the industry in herds of a given level of production. He agreed with Mr. Hunter that there were very great differences in the feeding value of different pastures, but considered that the level of feeding and the type of shed management would tend to mask these differences. A great deal of the fertility of the highly productive pastures in the best dairying land in New Zealand had been built up by the individual efforts of the farmers who had undertaken drainage work, liming, top dressing, etc.

Dealing with the two points raised by Mr. Frappell, Mr. James said that, generally speaking, increases in fat percentage would account for the increased weight of butter-fat, and that the "expectancy" figures for butter-fat production issued by the New Zealand Dairy Board were a convenient method of appraising the production value of a bull's daughters. The average daughter productions for many hundreds of bulls in herds of various production ranges had been taken as a basis for comparing the production standard of the "get" of a particular bull. For example, in actual

CLINICAL COMMUNICATION

TWO CASES OF SALT (BRINE) POISONING IN THE DOG

G. T. WILKINSON
Norwich

Case 1

Subjects.—Seven seven-week-old Alsatian puppies.

History.—The puppies were apparently in good health and very lively until the day before professional advice was sought. On that day the pups were very noisy and cried much more than usual. The following morning the owner noticed that they could not stand and requested professional assistance.

Clinical Examination.—This revealed a considerable degree of ataxia, the animals crawling along on their forelegs, dragging the hind legs behind them. Rectal temperatures were normal; the pupillary and other reflexes were normal. Palpation of the lumbar area evinced signs of pain. Some of the bowel motions in the run appeared rather fluid, but the majority were normal in consistency. The owner reported that some of the pups were straining as if they might have diarrhoea but no faeces were evacuated.

Careful enquiry into the history brought to light the fact that the owner had received some meat scraps from a cooked meats shop and that these had been fed to the puppies the day before symptoms developed. These meat scraps were examined and appeared to be in good condition, but when a portion was tasted it was apparent that they were almost pickled in salt. Further enquiry at the shop of origin showed that the scraps had been thrown into a barrel previously containing brine, whilst awaiting collection.

Case 2.

Subjects.—Four four-week-old Samoyed puppies.

History.—The animals had been perfectly normal until the morning before professional assistance was summoned and the owner was in the process of weaning them. The first sign of ill-health was an increase in noise, the pups crying much more than usual. Later it was noticed that they were unsteady on their legs and were indifferent to food.

Clinical Examination.—This showed four well-nourished pups, two of which were almost paralysed in the hind legs. Ataxia was marked in one of the others but very slight in the remaining one (the largest). The two worst affected crawled around dragging their hind legs, although quite a strong pedal reflex was present in these limbs. Body temperatures and pupillary reflexes were normal in all the puppies and there were no other signs of malaise. The bitch was apparently normal in all respects.

Careful enquiry revealed that the owner had boiled some fish heads the previous night and had mixed up the puppies' meal with the water in which the fish had been boiled. This was the first occasion on which this had been done and the next morning the pups were showing the syndrome described. The fish heads had been obtained from a merchant dealing in fresh fish and, as far as one could ascertain, the fish had not been in prolonged contact with salt or brine.

Treatment.—In both cases the pups were given a dose of castor oil and allowed plenty of milk and water. The Alsatian pups were apparently fully recovered in three days' time. The two slightly affected Samoyeds also quickly recovered, but the remaining two, although recovering the use of the hind legs, showed partial paralysis—of the left foreleg in one pup and both forelegs in the other. Small doses of liver extract were given to these two pups, and massage and supporting strapping applied to the affected legs. Recovery was complete in four weeks.

Remarks.—A diagnosis of salt poisoning must remain in some doubt in the second case as the source of the salt was not definitely established. However, the similarity of the symptoms to those shown in the previous case and the sudden onset of symptoms following ingestion of water in which fish heads had been boiled tend to support such a diagnosis.

The cases are interesting in that the main toxic effects appear to have been on the spinal nervous system, producing ataxia and paralysis of the limbs. The paralysis appeared to have been ascending in the case of the two Samoyed pups and fortunately would seem to be temporary in character. Apparently, similar symptoms are exhibited by cattle grazing on salt marshes and pigs suffering from brine poisoning are said to show vertigo, ataxia, and convulsions.

The cases are recorded in view of the almost complete lack of records of salt or brine poisoning in the dog.

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practice it had been found that the average production from the daughters of all bulls used in herds where the herd average for mature cows was 400 lb. of fat, was 365 lb. If, in such a herd, a particular bull was found to leave daughters which averaged 390 lb. of fat, he would be 25 lb. above expectancy and a very valuable animal if the records had been made under commercial conditions. Or, taking perhaps a more commonplace example, if in a herd with an average of 270 lb. of fat the daughters from a particular bull were found to be producing 270 lb., *i.e.*, the same as the mature cows in the herd, that bull, from experience, would be 2 lb. below expectancy. The expectancy tables were published annually and were intended to provide the farmers with a yardstick with which they could assess the value of a particular bull. The owner, better than any other, could make allowances for individual factors in his own herd, such as the degree of concentrate feeding the cows had had and whether the season in that district was particularly favourable for dairying, and so on.

Regarding the use of antibiotics referred to by Mr. Bruce, their experience had been that there was no beneficial effect, but their experiment had been on rather a limited scale.

Mr. James agreed with Mr. Campbell that it would be pointless to provide poor feeding farmers and bad managers with highly productive cattle, where the environment would not permit them to produce to their best. In practice it was found that the sort of man who was keen to join the A.I. movement was the progressive type whose chief concern was the difficulty of finding a sire to maintain production. This would continue to be the case as the A.I. service would not be cheap and this fact would deter the inefficient farmer to a large extent.

Replying to Mr. Moss, Mr. James said that the percentage of cows' milk recorded in New Zealand had fluctuated round 17 per cent. for all cows in milk and that the present figure was a little over 20 per cent.

Weekly Wisdom

Indeed . . . our present day might, as regards student education, not improperly be called that of the Medical Don, combining in himself the advantages of clinical appreciation with a research outlook, so as to maintain in a spirit of scientific exactitude those standards which inform the best of medicine.

The problem of how to maintain these (i.e., the students') eager serendipity and to harness it to clinical teaching and the flood of information swelling from the modern research laboratory is the supreme difficulty of undergraduate teaching to-day.*—J. F. Bromley, "Thoughts on Medical Education" (*Lancet*, August 30th, 1952; p. 393).

* Serendipity: the faculty of making happy and unexpected discoveries by accident.—S.O.E.D.

ABSTRACTS

Prevention of Body Strike in Sheep by DDT and BHC*

Insectory trials with dense populations of flies indicated that DDT at 2 per cent. concentration gave protection from strike for a period of six to eight weeks. BHC preparations at 0·5 per cent. gamma isomer gave protection for about four to six weeks. When the two insecticides were tested against the development of actual strikes, the first strike in sheep sprayed with 1 per cent. DDT occurred on the 54th day, and in sheep sprayed with 0·05 per cent. gamma BHC on the 33rd day. The insecticides had been applied at the rate of 1 gallon per sheep.

In the field trials the insecticides were applied either by means of a jetting plant or in a power spray unit in which only the top set of nozzles was used. On one property 2 per cent. DDT and 0·1 per cent. gamma isomer BHC were used in one case, and in the other 1 per cent. DDT only. On the second property, when a power spray unit was employed, 1 per cent. DDT and 2 per cent. DDT were employed.

It was noted during the trials that there was a close association between fleece-rot and body strike. It was noticed that after heavy rain fleece affected by fleece-rot tended to retain moisture longer than unaffected fleece; this would favour bacterial growth and thus encourage blowfly strike. The concentrations of insecticides used in the trials all proved effective. One per cent. DDT and 0·1 per cent. gamma isomer BHC when applied at a rate of approximately 2 pints per sheep gave protection for a period of 10 weeks. In one trial 1 per cent. DDT at the rate of 1 pint appeared to be efficient.

The authors conclude that although the full period of protection could not be assessed accurately, it seemed to be in the region of at least one month, and under mild fly wave conditions at least 10 weeks.

G. C. B.

* **Field Trials on the Prevention of Body Strike in the Sheep by the Use of DDT and BHC.** Johnstone, I. L., and Scott, M. T. (1951.) *Aust. Vet. J.* April. 79–82.

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Oesophageal Tube for Drenching Sheep with Phenothiazine*

The development of an oesophageal tube for the automatic drenching guns used for dosing with phenothiazine suspension is another advance in sheep dosing methods. The use of the tube reduces and practically eliminates the risk of staining wool with phenothiazine. The tube by-passes the mouth and pharynx so that no phenothiazine is slobbered around the mouth and nostrils. There is no wastage of phenothiazine as the full dose is delivered. It is claimed that by this method it is simpler to dose small lambs and young sheep in poor condition, as there is no failure to swallow. With experience this method of dosing proves as rapid as dosing with an automatic drenching gun.

The specially designed tube is 6 inches long, and consists of flexible metal tubing, having a restricted angle of flexibility of approximately 40°. The tube is fixed to a metal sleeve which is attachable to the drenching gun. The metal tube itself is completely enclosed with rubber tubing, which protrudes ¾ inch beyond the flexible metal section. The tube is passed into the sheep's oesophagus, by inserting the first, second and third fingers of the left hand in the side of the sheep's mouth, the thumb over the bridge of the nose and the little finger at the side of the jaw. The tip of the first finger is pressed against the roof of the mouth and the tube is passed between the second and third finger and thence down the oesophagus.

Approximately 1,500 sheep of all ages, including lambs at foot, have been drenched with various types of oesophageal tubes at the McMaster Field Station and there has been no untoward effect.

G. C. B.

* **An Oesophageal Tube for Drenching Sheep with Phenothiazine.** Whitlock, H. V. (1951.) *Austr. Vet. J.* August. 206.

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Use of Drugs in Feeding-stuffs*

This article discusses the many drugs and antibiotics which are now being incorporated in feeds to produce an increased rate of growth: such drugs as the sex hormones, thyro-active and antithyroids, Vitamin B_{12} and antibiotics. The sex hormones and the thyro-active substances act on the endocrines, so modifying the metabolism as to bring about a better use of the food nutrients in the tissues. Vitamin B_{12}, the animal protein factor, and the antibiotics lead to an improvement in the efficiency of food conversion. It is emphasised that all these drugs must be used with care and with a knowledge of the right growth period for their use.

Stilboestrol is usually used as an implant ; one implant is sufficient and will produce optimum results between six to eight weeks after administration.

The commonest form of thyro-active substance is iodinated casein, which stimulates activity of the thyroid gland, and thus speeds up the rate of metabolism. In dairy animals this increases the rate of milk production. As a result of the increased metabolism increased food consumption follows, so the use of iodinated casein demands careful feeding methods. Thiouracil is used because of its effect on the thyroid gland. Metabolism is slowed, and in fattening animals there is an improvement in food utilisation and meat quality. Timing is of great importance in the use of this drug.

Vitamin B_{12}, known as the anti-pernicious anaemia factor in man, was isolated by workers at the Merk Institute, U.S.A., and the Glaxo Laboratories almost simultaneously. This vitamin and the animal protein factor were at one time considered to be the same, but later work, especially that carried out with the antibiotics, has shown that the animal protein factor is of a complex nature.

Penicillin, streptomycin, terramycin, bacitracin and aureomycin are all now added to diets for young growing stock in the U.S.A. Chicks given antibiotics during the first six to eight weeks of their life weigh 2 lb. at eight weeks instead of the normal 1½ to 1¾ lb. Pigs from 10 weeks of age onwards, when fed on rations containing antibiotics have shown gains of 10 to 20 lb. above average.

It is believed that the antibiotics change the microflora of the intestinal tract, eradicating those bacteria less beneficial to digestion and encouraging the growth of the more beneficial kind.

The future of these drugs in Great Britain is discussed, and it is suggested that amendments in the list of approved compounds may follow the results of approved trials.

G. C. B.

* **The Use of Drugs in Feeding Stuffs.** Colborn, L. R. (1952.) *Agricultural Merchant.* January.

REPORT

[**Southern Rhodesia.** Report of the Director of Veterinary Services for the year ending September 30th, 1951.]

This is a record of continued progress in the control of the besetting animal diseases of Southern Rhodesia and the development of the productive resources of the animal industry.

The work of the department has been carried out at a high level despite staff shortages, deficient transport, and inadequate financial provision. The salaries offered by the Government are not attractive enough, and lack of housing accommodation is a further contributory factor to slow recruitment of desirable professional officers. Shortage of staff is even more acute in the Research Branch of the department, a situation to be deplored deeply in view of the many local problems of serious economic importance to the animal industry, which await solution.

Chief among the problems facing the department during the year was the widespread incidence of rabies in the territory, an incidence which the "tie-up" order, never popular with dog owners, European and African alike, did little to improve. Fortunately, through the personal initiative of the Director of Veterinary Services, Mr. J. S. Adamson, it has been possible to obtain supplies of the Flury strain of an avianised vaccine from the Lederle Laboratories, New York, and to commence a campaign of vaccination in the worst affected areas. This campaign has been so successful that during the last three months of the year over 57,000 dogs were vaccinated. It has now been planned to do a further 230,000 dogs during the coming year. It is claimed by the manufacturers that the vaccine protects 100 per cent. of dogs when challenged with rabies virus at the end of one year and 88 per cent. at the end of the second year. This vaccine is obviously a great improvement on the older order of rabies vaccines and with its ease of injection and its solidity and duration of immunity, it places in the hands of Veterinary Public Health authorities a practicable and efficient means of bringing this formidable and menacing disease under control in the wide areas of Africa where it is endemic.

Foot-and-mouth disease has also extensively engaged the attention of the department. The widespread outbreaks of the disease have necessitated the inoculation during the year of over 58,000 cattle with field virus. Investigations into this disease alone, with a view to the discovery of a vaccine which while giving immediate protection creates no new centres of infection, after the nature of some existing vaccines against other virus diseases, would fully justify the appointment of additional research staff.

Tuberculosis among both dairy and beef herds is also being tackled and extensive use has been made during the year of the single comparative intradermal test. This test has revealed an incidence of up to 5·5 per cent. in dairy herds and 10 per cent. in beef herds. It is interesting to note that in the carrying out of these tests the presence of a non-specific infection in the territory has been established. Is this skin tuberculosis, Johne's disease, avian tuberculosis or what? An answer to this question would have more than a technical value to those engaged in the Attestation Scheme in Great Britain.

Continuing this necessarily cursory review of the department's activities, mention should be made of the measures to combat the fairly wide incidence of heartwater. A large ranching firm in the Colony, employing its own veterinary staff, is tackling the problem by the general inoculation of calves with Ball 3 strain of *Rickettsia ruminantium*. More generally in the country the disease is successfully dealt with by solupyridine and sulphamezathine given in curative doses.

Other factors of significance recorded in the report are the absence of rinderpest, East Coast fever and a contagious pleuro-pneumonia of cattle from the Colony—three diseases of formidable importance in other territories of Africa. Horse sickness is being dealt with by sulpha-drug medication in the hands of owners, who seem to prefer this to vaccination. Quarter evil is being successfully controlled by means of large-scale prophylactic vaccination ; scab and tick infestations by dips of arsenic and BHC, alone and in combination.

A note of importance in the report is the treatment of gall sickness following vaccination by means of a new May & Baker preparation called " Nivaquine," containing chloroquine sulphate. This drug has been used successfully in America against anaplasmosis and in North Africa against *Theileria dispar*. Onderstepoort has now suggested that it may even be effective against East Coast fever. This new drug will no doubt be an improvement on the treatment of East Coast fever in the early days in Kenya by means of injections of a solution of quinine sulphate in 1-dram doses given directly into the abomasum through the abdominal wall. Trypanosomiasis is also fairly widespread in the Colony and its ravages are being successfully controlled by curative injections of dimidium bromide. Timely injections of this drug speedily check mortality and no drug resistance is set up. The tsetse fly problem remains unabated, of course, and curative and prophylactic injections of drugs can be but a palliative measure in the control of a disease of vast and serious importance to the animal industry of Africa.

Progress was made during the year in the control of contagious epididymitis and vaginitis, although the actual figures of the number of infected farms are depressing. At the end of 1950 some 160 farms were in quarantine for this disease, a decrease of 12. In ranch herds breeding has been little interfered with and in dairy herds artificial insemination has been of assistance in overcoming the consequent sterility of the disease.

Contagious abortion is rife in the territory. During the year the D.V.S., Onderstepoort, was able to supply 11,816 doses of strain 19 vaccine, but this quantity was by no means adequate. A concentrated vaccine from the Wellcome Research Laboratory is being tried out and given both intradermally and subcutaneously. The subcutaneous route of administration gave a slightly higher titre than the intradermal, although the latter was ample for all practical purposes.

In the poultry section of the report a formidable list of diseases is given, the control of which is being actively undertaken by the department. Chief among these diseases are spirochaetosis, coccidiosis, fowl typhoid, B.W.D. and chicken pox.

The Director of Veterinary Service and his two Assistant Directors—Mr. J. MacKinnon (Field Services) and Mr. G. Jamieson Christie (Research)—can be justifiably proud of the amount of work they and their respective staffs have accomplished during the year and the valuable contribution they have made to the economic prosperity of the livestock industry of the Colony.

W. W. H.

REVIEW

[The Control of Livestock Diseases in European Countries. By the Organisation for European Economic Co-operation, Paris.]

This booklet has been produced by a working party consisting of senior veterinarians from Great Britain, Denmark, Germany, Italy, U.S.A., and from the International Office of Epizootics and the Food and Agriculture Organisation, under the chairmanship of Sir Thomas Dalling.

The first part of this booklet consists of a brief summary and conclusion of the views of the working party. It is then followed by a section on the Control of Diseases of Livestock which consists of a very simple description, probably written to be read by laymen, on methods of combating bovine tuberculosis, brucellosis, bovine mastitis, foot-and-mouth disease, and swine fever. From the veterinary point of view this contains no new information and it is presented in the simplest of terms.

Section 3 comprises some broad recommendations, including the importance of adequate training of veterinarians, the need for a research background to disease control, supported by a laboratory diagnostic service, the necessity for education of the public if the control of animal diseases is to be effective, and, finally, the importance of the supply of satisfactory biological products fulfilling standards laid down by international agreement. A number of appendices follow:—

The first comprises tables showing the prevalence of disease in different species of animals in different countries. Some of these diseases are grouped together in order of their importance. The list for Great Britain contains some rather questionable information—those interested in diseases of sheep will be surprised to hear that foot rot in sheep is listed as not important, only occasional cases arising, and that the most important diseases of sheep in this country are considered to be external parasites followed by anaerobic infections and deficiency diseases, whereas helminth infestations are not featured in the first three sources of loss in sheep. Other appendices give a short description of the veterinary services in several countries with a very brief summary of any special schemes that may be in force for control of animal diseases.

From the point of view of the veterinary reader this booklet is disappointing; it reads as though it has been drawn up rather hurriedly and certainly gives only a superficial impression of both the problems and the means of dealing with them. A booklet of this nature could be invaluable if it had presented figures of economic loss caused by different diseases in each country (even if only approximate), more information on methods of controlling disease in each country, including a list of scheduled diseases, import restrictions and other information of a veterinary nature which would have been of value. It is to be hoped that if this booklet is republished it will be rather more ambitious in its objectives; as it stands it provides information which may be of interest to non-professional readers but is hardly of much value to veterinary surgeons.

NOTES AND NEWS

Diary of Events

Sept. 22nd.—Annual General Meeting of the Veterinary Section of the Universities Federation for Animal Welfare, at Westham House, Barford, near Warwick, 2 p.m. (See Notice.)

Sept. 24th.—Meeting of the R.A.V.C. Division of the B.V.A. at the Equine Research Station of the Animal Health Trust, Newmarket, 11.15 a.m.

Sept. 26th.—Meeting of the South Wales Division, B.V.A., at Llandilo (Railway Tavern), 2 p.m.

Sept. 26th.—Meeting of the North Wales Division, B.V.A., at the Church House, Arenig Street, Bala, at 2 p.m.

Oct. 2nd.—An Extraordinary General Meeting of the East Midland Division, B.V.A., will be held at The Priory, Thurgarton, 2.15 p.m.

Oct. 4th.—Autumn Meeting of the North of Scotland Division, B.V.A., at Inverness (Drumossie Hotel), 4.30 p.m.

Oct. 7th.—Meeting of the Lincolnshire and District Division, B.V.A., at the Grand Hotel, Peterborough, 2.15 p.m.

Oct. 8th.—Meeting of the Southern Counties Division, B.V.A., at Southampton (Polygon Hotel), 6 p.m.

Oct. 8th.—Meeting of the Editorial Committee, B.V.A., at 36, Gordon Square, W.C.1, 2 p.m.; Executive Committee to follow immediately.

Oct. 9th.—Meeting of the Midland Counties Division, B.V.A., at Birmingham (Birmingham Medical Institute, 154, Great Charles Street), 2.30 p.m.

Oct. 9th.—Meeting of the Herts and Beds Veterinary Society at 70, Holywell Hill, St. Albans, 7.30 p.m.

Oct. 23rd.—Annual Dinner and Dance of the Midland Counties Division, B.V.A., at Birmingham (Midland Hotel); Reception, 7.30 p.m.

B.V.A. Committee and Council Meetings

It has been decided to hold the next Committee and Council Meetings of the B.V.A. on Wednesday, Thursday and Friday, November 5th, 6th and 7th, 1952, in the following order:—

Wednesday, November 5th:
12 noon. Parliamentary and Public Relations Committee.
2.30 p.m. Veterinary State Medicine Committee.

Thursday, November 6th:
10.0 a.m. Organising Committee.
12 noon. Home Appointments Committee.
2.0 p.m. General Purposes and Finance Committee.

The above meetings will be held at 36, Gordon Square, London, W.C.1.

Friday, November 7th:
11.0 a.m. Meeting of Council at the Connaught Rooms, Great Queen Street, W.C.2.

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CONFERENCE ON METABOLIC DISORDERS AND OTHER PROBLEMS RELATED TO GRASSLAND AND FODDER CROPS AND INNOVATIONS IN ANIMAL HUSBANDRY

The above Conference, which is being organised by the Association, will be held in the Auditorium of the Wellcome Foundation, 183, Euston Road, London, on Thursday and Friday, November 20th and 21st, 1952. Members are asked to note the dates now and further particulars will be published later.

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THE B.V.A. AT HARROGATE

(Continued from page 553.)

Annual General Meeting

On the Wednesday of Congress the proceedings may be said to reach their peak, for then the interest of the scientific sessions is supplemented by that attaching to the annual general meeting and to the banquet, more especially when, as was the Association's privilege this year, for the second time in its history, it entertained a Minister of the Crown. The President, Mr. Alan J. Wright, devoted his address to the relationship existing between the Association and its members, passing to a review of work accom-

plished and an assessment of trends. The many reasons given why every member of the profession should take a live interest, and participate, in the affairs of the B.V.A., included the increasing measure in which the State is using the profession to carry out programmes of veterinary preventive medicine and disease control, the ever-growing liaison between ourselves and other bodies, so necessary in the effective promotion of schemes to enhance the value of the work of the profession to the community, and the issue by the Association of a weekly journal " which plays such an important rôle in our professional life," together with many other publications. All these activities demanded the utmost efficiency in organisation and the loyal, devoted labour of individual members.

The Association was a democratic organisation, similar to Parliament in set-up and constitution; the members were the electorate who, through their Divisions, elected to Council members who, in effect, were their M.P.s, the Council and Committees being the body who formulated and directed policy, with the officers and General Purposes Committee acting in the capacity of the Cabinet. In the working of that system both mature experience—certainly that of past Presidents as members of Council—and the vigour and enthusiasm of youth were essential. Every member should vote in the election of that parliament, yet over 1,300 members of the B.V.A. were disfranchised because they were not members of any Division. Members of Council and Committees had the obligation of explaining and broadcasting to their own Divisions and other members of the profession the vital work being done by the Association on their behalf.

The President concluded his address with a review of Association aims and achievements—the latter often gained in close collaboration with other bodies—in the eradication of diseases of livestock, in the field of veterinary public health (" the control of meat inspection must be under the veterinary profession "), in regard to salaries and conditions of service of Veterinary Officers in Government employment, and many other matters, sometimes involving the preparation of highly specialised memoranda.

Election of President and Other Officers

Having duly established that we visit Aberdeen next year from September 7th to 14th (this period having rather special reference to the opportunity of seeing something of the Braemar Games), also that Torquay will be recommendation to the 1953 annual meeting as the place of Congress for 1954, the members proceeded to elect their officers for 1952-53.

The President of the Association is Mr. Alastair M. Graham, commended to his colleagues by the outgoing President as " a man of sterling character and ability " in whose election they were making history inasmuch as, after a number of years in the exercise of considerable pressure, at last they had as the President of the British Veterinary Association a member of the Animal Health Division; moreover, a man of wide experience, highly esteemed and respected in the service of the Ministry of Agriculture, and thoroughly well versed in the affairs of the Association, in whom everyone could put complete faith and trust.

Captain Atkinson, a colleague in the Ministry's service, seconding, saw Mr. Graham's election as witnessing to the friendliness existing between the Veterinary Officers of the Ministry and other bodies in the profession—as, indeed, did Mr. Graham himself, in that he " realised that his selection for that post was a tribute to his colleagues of the Animal Health Division, many of whom had done very great work for the Association."

Mr. Alan J. Wright having been elected to the Senior Vice-Presidency, the vital post of Junior Vice-President (President-Elect) was unanimously accorded Mr. Alexander Thomson, of Glasgow, the gifted University Lecturer *cum* practitioner, a former President of the Scottish Branch, whose laurels include the Hon. Secretaryship of the immensely successful Congress held in Glasgow in 1938; member of Council for 22 years and, moreover, a most assiduous attender at its meetings.

Mr. H. E. Bywater, that " worthy and stalwart friend and adviser," re-assumed office as Hon. Treasurer, but reminded the members that he had shouldered the burden since 1938, when he was elected at Glasgow under the presidency of another Scot.

The President's voice held a note of regret that in re-electing Mr. H. F. Hebeler as Hon. Secretary it would be for the last of the statutory period of three years attaching to that post. Mr. Hebeler had " helped his fellow officers in every possible way and was always cheerfully ready to do any and every job allocated to him."

There followed the enthusiastic re-election of Mr. Frederick Knight as General Secretary, on the call of the President, who was " certain that it is only those who have passed through the various offices and through the Chair who have any knowledge of the terrific amount of work that Mr. Knight does for us."

In the regretted absence abroad of Sir Weldon and Lady Dalrymple-Champneys, their cup and medal was presented by the President to Professor Ronald Everett Glover, of the University of Liverpool Veterinary School, in recognition of his work in promoting veterinary science generally and, in particular, research relating to tuberculosis and virus diseases.

Divisional Representation on Council

The following resolution supported by Council, stood on the agenda paper:—

" That Article 65(B) of the Articles of Association be amended to read:—

' Representatives from each Division of the Association, namely, two representatives for the first 50 members or portion thereof and thereafter one representative for every 50 members or portion thereof in excess of 25. Provided always that the total number of representatives from any one Division shall not be more than six.' " (The above resolution referred to the number of representatives which a Division may nominate to serve on the Council of the Association. The existing basis was one representative for every 35 members or portion thereof, together with the Hon. Secretary, and the maximum number of representatives which any one Division might nominate was 10, exclusive of its Hon. Secretary.)

The President pointed out that the resolution came as an almost unanimous recommendation from a Council which for years had been faced with the problem of reducing its unwieldy and ever-growing proportions. Each Division had the opportunity of either electing its Hon. Secretary as a representative or putting someone else in his place. The proposed alterations would reduce the number of Councilmen by from 20 to 25 members.

The resolution was carried with two dissentients.

Before the meeting closed the members agreed, with deep feeling, to Mr. S. L. Hignett's proposal that a message of sympathy and expressive of the hope of his

rapid and complete restoration to health be sent to Dr. J. T. Edwards. That "friend, wise counsellor and worthy opponent" was absent this year through illness and, said Mr. Hignett, it would be a nice gesture if such a message were sent from the Association which Dr. Edwards had striven so effectively to serve for so many years. The President, supporting, said that Dr. Edwards had written a very charming letter wishing the Congress every success and he felt that such a message would be a happy supplement to the private reply he proposed also to send. He was glad to say that Dr. Edwards was progressing, though he had not yet been discharged from hospital.

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The Minister at the Banquet

The social, certainly the political, highlight of the Conference was the presence of Sir Thomas Dugdale at the Annual Banquet, where Her Majesty's Minister for Agriculture proposed the toast of the Association, winning the hearts of all members by his opening reference to the fact that, as the Minister for Agriculture, he was very much an interested party in the welfare of the Association. The well-being of the agricultural industry depended a great deal upon the quality of the members of the Association and upon the services of a strong, well-trained and progressive veterinary profession: in the time he and the profession had to spend together, they might be able to make a useful contribution to that end.

The great production drive he had introduced, aiming at an increase in agricultural productivity of 60 per cent., was greatly dependent for its success, so far as livestock products were concerned, upon the whole-hearted co-operation of his hearers and those whom they represented. Were they able to cut down the loss of milk and meat caused by disease, more than half their problem would be solved. Much already had been done by the profession in recent years: the average milk yield had been increased greatly by modern methods of treating mastitis and by the use of vaccine S. 19. Production of both milk and meat must have been increased by the rapid strides that had been made with the help of the profession in the eradication of tuberculosis: but what they had done surely must only whet their appetites for even better results; improved methods of treatment were now available for many animal ailments—were they being used right throughout the country as much as they might be?

He was encouraged to believe that recently there had been a subtle change in the relationship between farmers and veterinary surgeons, proceeded the Minister, and it was a change for the better—the practical adoption by the former of the old adage that prevention is better than cure. Farmers were now more disposed to seek advice from the members of the veterinary profession in maintaining the health of their animals instead of waiting until disease broke out; that was a great step forward and he was sure the profession would do all it could to encourage that attitude.

He was very pleased to see that the Ministry's officers had been taking a prominent part in the Congress, and to know that the exhibit from Weybridge was one of the best of its kind; an even greater source of satisfaction was the knowledge that the relationship between the Association and the Ministry of Agriculture was so satisfactory at the present time. What clearer evidence of that could they have than the fact that the Association had elected as its next President, Mr. Graham—one of the Superintending Veterinary Officers in his Department? He would like to congratulate Mr. Graham on the honour and the Association on a very wise choice.

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Within a few weeks of becoming the political head of the Ministry of Agriculture, Sir Thomas proceeded, their new President had become very deeply engaged in combating foot-and-mouth disease in the most serious form that had struck this country since the 1920s. They had all had an anxious time, but he was happy to say he was confident that we were past the worst as far as this epidemic was concerned; but while it continued to rage on the other side of the Channel it must be expected that fresh outbreaks might occur. Those outbreaks had shown them again the vital importance of the early reporting of suspicious symptoms, and he gladly acknowledged the help they had received from practitioner veterinary surgeons all over the country. He was particularly pleased that their members had an opportunity of hearing Mr. Graham's talk on the diagnosis of foot-and-mouth disease in the field, because normally they did not have the opportunity of seeing the disease, about which they would be far less anxious if they were absolutely certain it would be reported as soon as the very first symptoms appeared. That applied also, of course, to other notifiable diseases, and his department stood ready to give all the assistance possible.

He understood that from the veterinary point of view, their profession knew more about viruses and type variants than a lot of medical and other people who talked so much about them, but he thought the time had come when they might with advantage have an independent survey of our present methods of combating the disease, against the background of the advances in scientific knowledge and in the light of their administrative experience in this country and the methods used in other countries. Whatever the results might be of the enquiry by the Departmental Committee under Sir Ernest Gowers, its report would be written in the plainest English and quite definite in its recommendations. The Ministry would give the Committee help in whatever direction it might require. He had tried to keep its numbers down, but he thought they would agree it was a very high-powered Committee, while it contained a very eminent member of the veterinary profession in Professor Robertson, of the Edinburgh Veterinary School; he had no doubt that the Association would be asked to give evidence before that Committee.

He would like to take that opportunity to pay tribute to the work of the Ministry's veterinary staff during the months that had gone by; also that of the administrative staff. Their devotion to duty for long periods of unremitting strain was beyond praise and he had been amazed by the number of letters he had received from people unknown to him, asking him to thank his veterinary staff for the help they had given. But all concerned—research workers, private practitioners, veterinary officers—had played their part as members of a team and it was here that the Association had its own most important responsibility, because clearly the main contact with the individual farmer was the private practising veterinary surgeon and he could not give his best service unless he was kept constantly in touch with developments in the technical and administrative fields. Their Association was facing this task in an enlightened way; that Congress had that aspect of affairs particularly in mind, as he could see from their agenda.

The Minister concluded, "Thank you for your past services: the members of your profession form a vital pivot in the whole future of the agricultural industry."

The President's Response

In the course of his response on behalf of the Association, the President, Mr. Alan J. Wright, referred to Sir Thomas's standing not only as a greatly respected Minister but as a fine practical farmer, and to his prowess as a sportsman.

That toast was one to a profession and an Association upon which rested a great responsibility in being called upon to control disease in a variety of species. They were an integral part of a prosperous agriculture and, moreover, had an important rôle to play in human nutrition. The Government must realise that they could undertake these tasks successfully only if given the requisite opportunities and facilities. The quality and calibre of the British veterinary surgeon was the highest in the world and to-day the profession was giving a finer service than ever before to the owners of both large and small animals. The potentialities of that service were enormous and given the facilities and encouragement, the veterinarian was ready and eager to meet these wider obligations to the full. One field in which the British veterinarian had never been able to play his proper part was in the control of all foods of animal origin; he referred particularly to meat inspection. They were the only body of people fully trained and qualified to control this work, both *ante* and *post mortem*. Great Britain was one of the few countries in which the veterinary profession was not in control; they were ready to accept control of that work which they maintained, because of their training and background, belonged within the field of their profession. Another important field in which they failed to secure proper recognition was applied veterinary research.

The Minister rightly had paid tribute to his veterinary field and administrative staff. It was not usual at that function for them to praise their own members, but he thought on that occasion he had a right to do so, and he was sure everyone there wished him to congratulate the Ministry's veterinary staff on the way they had tackled and almost achieved victory over the recent foot-and-mouth epidemic. "I would like to assure you, Sir," said the President, "and to state publicly, that the profession and the Association supports the slaughter policy as being the only proper scientific and effective manner under existing circumstances, in which to control and eradicate foot-and-mouth disease in this country to-day." He heartily welcomed the Minister's action in setting up that admirable Committee to review the policy for dealing with the disease in Great Britain, but they were somewhat disappointed that its membership did not include a greater number of veterinary surgeons, who surely were essential to assist it in assessing the value of evidence that necessarily must be of a veterinary nature. He sincerely hoped it was not too late to remedy that omission.

He was proud to say that the relationship between the whole-time staff of the Ministry and the practitioner had never been better than it was to-day and was confident that it would become closer and closer, but in view of the importance of the veterinary staff of the Animal Health Division and the utmost need for men of the highest quality to be attracted to its service, it was no wonder that the Association and the profession had been so profoundly dissatisfied with the status accorded to this service by the Government. Certain small improvements had taken place during the past few years, but it was a deplorable state of affairs to realise that amongst the professional and scientific departments of the Government the veterinary staff was placed almost at the bottom. They maintained that their professional status in the Government departments should be next to that of the medical profession, and he could assure the Minister that the Association would continue to fight to resolve that unsatisfactory and unjust situation—"and we do, Sir, ask you to help us." The profession had a tremendous but noble duty confronting it, of the highest national importance, and that was to save life and suffering amongst animals large and small, to reduce to an absolute minimum the loss of human foodstuff due to disease and mismanagement. Every branch of the veterinary profession must collaborate and work not only together, but with other professions, bodies and ancillary trades whose spheres of work were closely allied with theirs. In this connection they were indeed happy and pleased that they had now a closer and more understanding relationship with the National Farmers' Union.

Replying to the toast of "Our Guests," proposed in felicitous terms by Mr. A. M. Graham, Sir James Turner, President of the N.F.U., stressed the importance of stimulating the interest of the farmer himself in veterinary matters, so that he might be taught to want to know how best to use the skill and knowledge of his veterinary surgeon in a preventive way. When trying to engender the spirit of co-operation they must be careful to see that they understood one another's language. He had great confidence in their joint capacity to achieve what was really necessary in this country to-day—the maximum productive capacity of our land.

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Meanwhile, day by day, the remaining scientific sessions, demonstrations (a further series of magnificent small-animal operation colour films from the Royal Veterinary College) and social events (including the "coming of age" dance of the V.V.B.F. Ladies' Guild) further to those reported upon in our last issue, were going forward with the success inherent in the participation in this year's Congress of what, when the final check is made for recording in our Congress number, may well prove to be almost a record number of members, delegates and their ladies. That enlarged, illustrated issue will carry a full record of the proceedings of a week's pleasure and enlightenment—the discussions were quite outstanding—which seemed to us, with a long experience, to contain no serious flaw, unless it were the fitfulness of the weather and even that played a refreshing part in preserving the envious and deserved reputation of Harrogate as "the floral town."

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PERSONAL

Births.—Brown.—On August 5th, 1952, at Dublin, to Norma (*née* Nichols), wife of Colin Brown, M.R.C.V.S., Colonial Service, a daughter—Elizabeth Charlotte.

Davies.—On August 27th, 1952, to Betty, wife of D. R. T. Davies, M.R.C.V.S., a sister for John—Heather Ann.

Marriage.—Blyth—Aitken.—On September 11th, 1952, at Crown Court Church of Scotland, London, Elizabeth Aitken, M.R.C.V.S., to Anthony M. Blyth, M.R.C.V.S., of Braintree, Essex.

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R.C.V.S. OBITUARY

The Late Mr. Harold Stainton, F.R.C.V.S.

A Tribute

The death of Harold Stainton at the age of 65 years, reported in your last issue, will be mourned by many both within and without the profession.

The son of Thomas Stainton, M.R.C.V.S., of Reading, he graduated at the Royal Veterinary College, London, in July, 1914, and joined Hobday and Sutton in their Kensington practice.

Within a few weeks both partners, who were on the Reserve, were called up and he found himself left alone to run the practice, which he did until 1919, when the others returned. He then joined the

partnership, took his Fellowship in 1921 and continued in Kensington for the rest of his life.

Known to all who show dogs, he was veterinary surgeon to Crufts dog show and arranged the veterinary inspection at most of the London dog shows for many years. He was also veterinary surgeon to Mills' Circus and always took great delight in their winter season at Olympia.

An able veterinary surgeon, a gifted musician, a quiet, kind and charming man, we shall miss him greatly.

To his widow and three daughters, the eldest of whom is a member of the profession, widespread and deeply sincere sympathy will be offered in their grievous loss.

P. S.

A Further Appreciation

Mr. H. Scott Dunn, M.R.C.V.S., of Hove, Sussex, writes: "It was my pleasure and privilege to know Harold for over 40 years. He was built in one piece, a brilliant practitioner, and knew no humbug. On many occasions, with others, I worked along with him at many of the championship dog shows and it was a real pleasure to be in his company. He must have had hundreds of clients and their patients through his hands and in him they will miss a great friend and adviser. The many dog societies with which he was connected will more than feel his death. The profession generally, the small-animal side particularly, has lost a notable member."

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax:

Ches.—Marton Villa, Marton, Nr. Winsford (Sept. 8th).

Devonshire.—Northcombe Farm, Salcombe Regis, Sidmouth (Sept. 8th).

Essex.—St. Margaret's Wood Farm, Little Waltham, Chelmsford (Sept. 11th).

Glos.—Rock Farm, Long Hope (Sept. 11th).

Hants.—Beach Farm, Andover Down, Andover (Sept. 8th); Wilson Stores, Alton (Sept. 9th).

Herts.—Cunningham Hill Farm and Woodlands, also May Hill, Tower Hill, Sandridge, St. Albans; North End Farm, Bassingbourn, Royston (Sept. 9th).

Kent.—Lees Farm, Willesborough, Nr. Ashford; Oak House Farm, Four Elms, Edenbridge (Sept. 8th); North Frith Farm, Hadlow, Tonbridge (Sept. 9th); Sarness Farm, Waltham, Canterbury (Sept. 10th).

Lancs.—New House Farm, Chaigley, Nr. Clitheroe; Shepherd's Farm, Cockerham, Lancaster; Highfields Poultry Farm, Liverpool Road, Rufford, Ormskirk (Sept. 8th); Lower Cock Hill Farm, Hathersall, Longridge, Preston (Sept. 10th).

Notts.—Cedar Farm, Cossall (Sept. 11th).

Oxfordshire.—Manor Farm, Toot Baldon, Oxford (Sept. 9th).

Somersetshire.—Stowey Farm, Timberscombe, Minehead; Water Farm, Stogursey, Bridgwater; Hillside Farm, Mudford, Yeovil (Sept. 8th); Grove Farm, Kingston, Taunton (Sept. 10th).

Suffolk (E.).—Hill Farm, Kettlebrugh, Woodbridge; Lodge Farm, Worlingsworth, Woodbridge (Sept. 8th).

Suffolk (W.).—Knacker's Yard, Chilton Street, Clare, Sudbury (Sept. 10th); Whitehall, Gt. Waldingfield, Sudbury (Sept. 11th).

Sussex (W.).—Plovers, Comptons Lane, Horsham (Sept. 9th).

Warwicks.—The Warf, Newbold-on-Stour, Stratford-on-Avon (Sept. 8th).

Yorks (N.R.).—The Grange, Newton-le-Willows, Bedale (Sept. 8th).

Yorks (W.R.).—Hollin Hall, Bishop Monkton, Harrogate (Sept. 9th).

Foot-and-Mouth Disease:

Sussex (W.).—The Brooks, Upper Beeding, Steyning (Sept. 9th).

Fowl Pest:

Hants (S.).—The Orchard, Fair Oak, Eastleigh (Sept. 8th).

Isle of Ely.—4, Wimblington Road and 33, Newgate Street, Doddington, March, Cambs (Sept. 11th).

Swine Fever:

Cambs.—Hatton's Farm, Long Stanton (Sept. 12th).

Hunts.—Moor Farm, Abbotsley, St. Neots (Sept. 8th).

Lancs.—Wash Farm, Bickerstaffe, Ormskirk (Sept. 11th); Forest Farm, Norley, Warrington (Sept. 13th).

Lincs.—Howdales Farm, South Cockerington, Louth (Sept. 8th).

Middlesex.—Royal Nurseries, Bedfont Farm, Feltham (Sept. 9th).

Norfolk.—Group R. Allotments, Caister Road, Gt. Yarmouth (Sept. 9th).

Surrey.—Rowhurst Farm, Oxshott Road, Leatherhead (Sept. 10th).

Warwicks.—Moar Farm, Burton Green, Kenilworth (Sept. 13th).

Worcs.—Pig Sties, Junction Street, Oldbury (Sept. 9th).

Yorks.—Ninelands Farm, Ninelands Lane, Garforth, Leeds (Sept. 8th); Council Allotments, Moors Ends, Doncaster (Sept. 9th).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

THE DESIGNATION "GELDING"

Sir,—I have read with great interest the letters of Mr. Tutt and Mr. Begg on the question of the term "gelding," and I feel that they have raised a very nice point.

There is a considerable difference in the reports of what these two gentlemen saw and found at the time of their respective examinations. Mr. Begg felt the left cord, Mr. Tutt found only a puckering of the scrotum. In my experience puckering of the scrotum is generally associated with adhesions to the cord.

If asked to define a "gelding," I would say a horse that has had both testicles *completely* removed.

A horse is castrated to remove not only his reproductive powers but also to obtain absence of all stallion attributes.

If a horse which has had an operation for castration performed upon it still shows stallion tendencies, I agree with Mr. Begg that this horse is almost certainly "rough cut" and a portion of testicular tissue remains.

If such a horse has to be admitted as a gelding simply because he cannot reproduce himself there would be no end to the case. The position would then be, how much testicular tissue can be left before he ceases to be a gelding? Is it 1/1,000th part, 1/100th, 1/10th, or what?

I would be interested to know what term could be applied to a horse that had been operated upon with a Burdizzo.—Yours faithfully, A. H. Robb, 16, Ward Street, Glasgow, C.4. *September 15th*, 1952.

. . . .

Sir,—It is with some reluctance that I enter into this correspondence. It would seem that the rhetorical question "what is a gelding" has become subordinated to the discussion of a particular case.

In my opinion a gelding is a castrated male horse. For me "castration" has one meaning and one meaning only—the complete removal of both testicles together with the epididymis.

The horse referred to by Mr. Tutt and Mr. Begg was castrated by—Yours faithfully, N. Robert Turnbull, 65, Worting Road, Basingstoke. *September 13th*, 1952.

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THAT SLANG TERM "VET."

Sir,—There is nothing wrong intrinsically with the word "vet." It is the indiscriminate use of the word by the uninformed public which galls. So far as I know there is exact legal meaning to the word and, in common use, it can mean veterinary surgeons, veterinary practitioners, lay castrators, dog-breeders, itinerant medicine purveyors and many others. Only a few months ago I was shown a postcard sent by a titled lady to a local chemist on which he was addressed as "Mr. ——, Vet. Surgeon, Banbury."

It is only natural that the public should seek to shorten titles and descriptions, especially one as long as ours. Would not the adoption of the word "vet." as an official abbreviation of either veterinary surgeon or veterinary practitioner meet the case? At least we should then know definitely what a "vet." was.—Yours faithfully, G. Mason, 42, North Bar, Banbury, Oxon. *September 11th*, 1952.